

ATTACHMENT 1
KONICA MINOLTA TECHNOSEARCH CO., LTD.

2005/07/06

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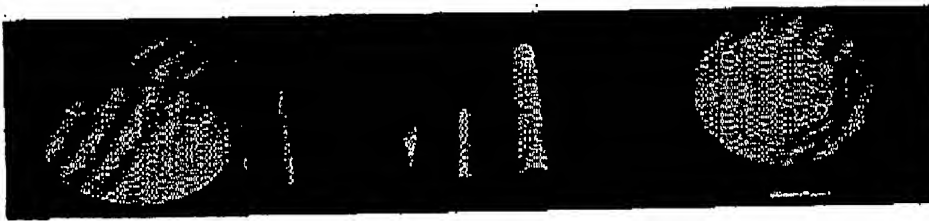
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KOT-0081

ATTACHMENT

Tokuyama Aluminum nitride (AlN) home page:

Uniform quality, large-sized AlN ceramics. You can select two grades of pressed sintered products to meet your needs.

**Properties**

	Grade	SA-15	SA-17	
General	Purity (Al + N)	%	≥ 94.0	≥ 99.0
	Purity (Al + N + O)	%	≥ 94.8	≥ 99.9
	Density	g/cm ³	3.33	3.24
Electrical	Volume Resistivity	Ω·cm	1.1x10 ¹⁴	3.1x10 ¹³
	Dielectric Constant (RT, 1MHz)		9.1	8.9
	Dielectric Loss (RT, 1MHz)		3.0x10 ⁻⁴	2.8x10 ⁻⁴
	Withstand Strength	(kV/mm)	31.3	18.7
Thermal	Thermal Expansion Coefficient	(K ⁻¹)	4.3x10 ⁻⁶	3.9x10 ⁻⁶
	Thermal Conductivity at 20°C	W/(m·K)	184	86
	Thermal Conductivity at 700°C	W/(m·K)	159	-

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Mechanical: Bending Strength
 Values are typical, not minimum
 For more details, please contact us
 Poisson's Ratio

MPa	357	356
GPa	322	320
	0.24	0.24

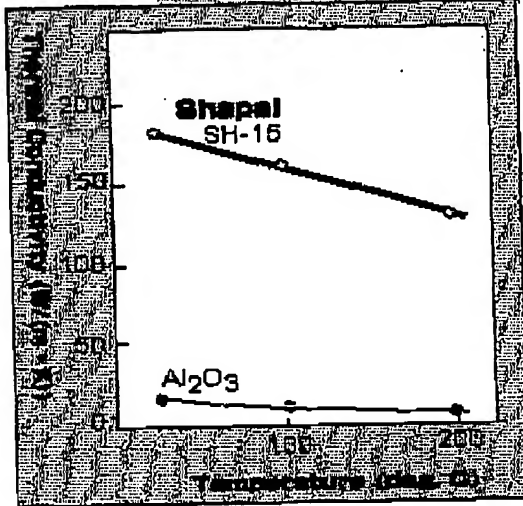


Fig 1:

Thermal Conductivity by
 Temperature

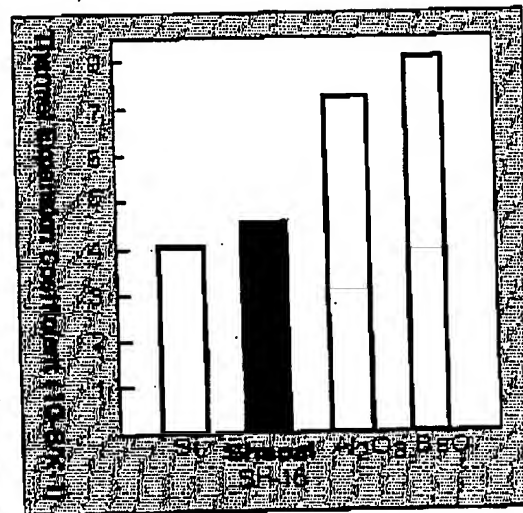


Fig 2:

Thermal Expansion coefficient